

# BATTALION MORTAR PLATOON OPERATIONS IN AFGHANISTAN

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In early 2006, the 173rd Airborne Brigade was alerted for deployment in support of the global war on terrorism. The brigade was initially alerted for a deployment to Iraq, but prior to deploying was notified it would instead be deployed to Afghanistan. This change in deployment location directly affected my platoon — the 2nd Battalion (Airborne), 503rd Infantry Regiment's mortar platoon, and the valuable training and preparation we conducted directly resulted in success in combat. The purpose of this article is to share the valuable lessons my platoon learned during 15 months of heavy combat operations.

The valuable lessons learned enabled the battalion's mortarmen to accurately fire more than 5,000 indirect fire missions and over 21,000 mortar rounds in support of roughly 1,100 engagements with enemy forces in the Kunar and Nuristan provinces of northeast Afghanistan. The 15 months of combat validated the doctrine, TTPs, and experience learned through numerous mortar training events, live fires, and gained institutional knowledge. The Soldiers' outstanding performance, bravery, valor, and dedication to duty resulted in the battalion's mortarmen being awarded one Distinguished Service Cross, two Silver Stars, three Bronze Stars for Valor, and more than 50 Army Commendation Medals with Valor.

## Pre-deployment

In March of 2007, while the battalion was conducting pre-deployment training at the Joint Multinational Readiness Center (JMRC), our battalion commander returned from a pre-deployment site survey of northeast Afghanistan. He immediately gathered and briefed all leaders in the battalion on all topics relevant to our future area of operations. During this brief, we were informed that the mortar platoon would be separated into sections, which would be attached to the rifle and heavy weapons companies in the battalion. Platoon operations would not be conducted. Each company would receive two to three mortar systems in addition to the organic 60mm mortars. (Once in theater, we gained additional 120mm theater-provided mortar systems. In addition, halfway through the deployment a New York National Guard mortar section consisting of 10 personnel also augmented our task force with additional mortars.) At a minimum, we would operate five mortar sections from the organic battalion mortar platoon in addition to three company mortar sections. This would give the battalion a total of eight to nine mortar sections to operate across our battlespace.

All leaders in the battalion were given contact information for

*Soldiers with 2nd Battalion (Airborne), 503rd Infantry Regiment launch mortar rounds in northeast Afghanistan 24 October 2007.*

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their counterparts who were currently in theater awaiting our relief in place (RIP). This information and subsequent correspondence would be the greatest source of pre-deployment success. I was able to talk to my counterpart on a daily basis through secure e-mail. I cannot stress enough that mortar leaders need to have a clear picture of what their unit will be facing in theater. They must plan accordingly and task organize down to the individual mortar section. If communication was not made with my counterpart downrange, my platoon would have miserably failed in its task organization for the mission.

The battalion mortar platoon is doctrinally organized to run two individual sections of two squads each. If we had been unaware that we would separate mortar sections in theater, we would have faced numerous challenges during our first few months of combat. Due to the excellent communication with the mortar platoon we would be replacing, we had a clear picture of mortar operations in our future area of operations. Every question that our platoon had was answered quickly and accurately. I recommend that all leaders in your unit have an AKO-S account in order to communicate over secure channels with their counterparts. As long as you have a security clearance, your unit S2 shop will aid in the set up of this type of account. Ensure all of your NCOs and those who have the potential to be promoted during the deployment have been processed for a security clearance. From my counterpart, I learned where the sections were emplaced, how many people were manning a section, what theater-provided equipment I would be receiving, where the most volatile bases were, types of indirect fire missions, and a host of other questions that aided my platoon during the planning process. Mailing addresses for individual section locations were also distributed prior to deploying. This enabled the Soldiers to begin mailing personal items they were unable to carry during the initial embarkation.

Our battalion mortar platoon consisted of one officer and 23 enlisted personnel. In order to run five mortar sections from our platoon, it was quickly noted that we were woefully short of personnel and equipment. Through war gaming, planning and training, we determined that we could effectively run five sections with a minimum of six personnel



Photos courtesy of author

*Mortarmen with the 2nd Battalion, 503rd Infantry Regiment prepare to fire rounds during a mission in Afghanistan in October 2007.*

per section. Each section would be responsible for two to three mortar systems at each location. We would man each section with two fire direction center personnel, two gunners, and two ammunition bearers. Since we were short personnel, we developed a course of action to present to our battalion leadership on how to receive additional personnel from other companies in our unit. All of the companies in our battalion were supportive and were able to backfill our platoon with Soldiers who were not indirect fire infantrymen. We relied on a quick training program in country to get these Soldiers up to speed. They all quickly became experts in indirect fire operations and as a result most have desired to reclass into our MOS.

During the pre-deployment phase, units need to cross train as many non-mortar MOS-qualified members of their unit as possible. Units need to focus on mortar assistant gunner and mortar gunnery procedures. Work with your unit chain of command to conduct mortar live fires in order to give an orientation of mortars to your unit. Basic classes on assistant gunnery duties and preparation of mortar ammunition must be conducted. The benefits of training non-11C personnel on the basic skills of a mortarman paid off greatly in combat. There are countless examples of our unit being in contact where the closest cover found during an engagement was the relative safety of the mortar positions. Once in the mortar position and pinned down by enemy

fire, the Soldiers would quickly assume the duties of an ammunition bearer or assistant gunner and augment our crews with great skill and effectiveness.

We began to map out what extra equipment would be needed in order to conduct sustained combat operations. In order to run the mortar sections effectively, we determined how many bore sights, mortar FDC computers, plotting boards, Advanced System Improvement Program (ASIP) radios, aiming circles, additional mortar sights, base plates, and Multiband Inter/Intra Team Radio (MBITR) radios we would need. We were unable to fill the requirement for extra bore sights, aiming circles, or additional plotting boards until we were in country. Units will need to cross load computers from the company mortar sections in order to maximize fire direction capability. We did a great job of coordinating with our forward support company to build a stockpile of extra baseplates, mortar sights, and repair parts for our weapons systems. If you wait until you are in country, it will be too late. I recommend having a minimum of two extra sights and one extra baseplate per mortar tube.

As a result of such decentralized operations to be conducted in theater, the platoon leadership determined that an intense instruction on fire direction procedures also needed to be conducted. We needed to certify all Soldiers in our platoon to operate a fire direction center.

Our goal was to train every single member of our platoon to use the FDC computer in the event of casualties or absences for leave or other duties that pull personnel away from a patrol base. We were given full support by our company and battalion leadership to conduct this during our JMRC rotation. We had recently been issued three M32 Lightweight Handheld Mortar Ballistic Computers (LHMCs) but were able to retain our old five M23 Mortar Ballistic Computers (MBCs). We focused on ensuring every Soldier in the platoon was able to process calls for fire on the plotting board and M23 and M32 computers. We focused on basic missions to include grid, shift, polar, registration, coordinated illumination, illumination, and immediate suppression missions. Each Soldier became extremely proficient with each system over the course of five days of intense training. This training would pay off huge dividends in future combat operations. We used the course of instruction from the Infantry Mortar Leader's Course as our training guideline.

During the JMRC rotation, we split the platoon into five sections. This enabled the individual section leaders and Soldiers to begin forming relationships with their companies and forward observers. It is critical that once the platoon is split up that they immediately begin to work with their attached company in order to develop standard operating procedures and to ensure that all personalities mesh. This early attachment enables the platoon leadership to rearrange the sections in order to maximize working relationships. This also enables the company commanders to begin integrating heavy and medium mortars into their organizations. As a result of such decentralized operations, company commanders were given clearance of fires authority for all mortar assets in their formations. Company commanders who normally only planned for 60mm mortar fire were now challenged with integrating 120mm and 81mm mortar fires into their operational plans. Section leaders need to be very proactive within their companies and ensure the maneuver commanders are aware of all capabilities and limitations of their sections' weapons systems.

The biggest lesson learned for pre-deployment of the mortar platoon was the shipping of our sensitive items, squad equipment, and expendable supplies. The platoon shipped its equipment in one

shipping container organic to HHC. As a result, this container flowed into country with HHC while the Soldiers shipped with their respective companies. This caused a great deal of problems for the HHC executive officer. Since the mortar platoon sergeant and platoon leader were forward with different mortar sections, it fell onto the company XO to separate the mortar equipment for each location and push it forward to the different sections. Over e-mail and the telephone, we were able to ensure that all required equipment was pushed forward prior to the relief in place. My recommendation is that each section split up and ship its sensitive items, expendable supplies, and all other squad equipment with the company it will be attached to. All of this equipment must be hand-receipted to the section leader prior to out load. This will ensure that all needed equipment is flown into the correct location. It will ensure the relief in place is conducted with all needed equipment, which will allow the platoon leadership and Soldiers to integrate seamlessly into combat operations.

Prior to deployment, one of the section leaders was tasked to build 10 FDC packets (two for each section). Folders with six different pockets were acquired and filled with all needed fire direction center forms. As a result, each section deployed into country with 500 computer records, 100 data sheets, 100 target list worksheets, 100 computer met data sheets, 100 safety diagram forms, and computer cheat sheets for all missions with the M23 and M32 computers. I recommend that each mortar section deploy with a minimum of 500 computer records. This will be enough to sustain each section for the first 90 days in country. After 90 days, the company will have its automation equipment in place and can resupply the mortar section as needed.

If your unit is tasked to deploy to Afghanistan, the unit leadership must also institute a rigorous physical fitness plan in order to prepare for the mountain fight. The stresses of fighting in the mountains, carrying heavy loads, and dealing with extreme weather and difficult terrain will quickly sap the combat power of an ill-prepared unit. Units must focus on building strong lower bodies that can withstand the rigors of carrying heavy loads throughout their areas of operations. As mortarmen, we worked hard to ensure our Soldiers were

ready for Afghanistan by conducting numerous road marches with full equipment and body armor. We stressed the importance of combat physical fitness that increased our Soldiers' ability to carry heavy loads, perform under pressure, and the ability to continue even though extremely fatigued.

Core muscle strength and cardio respiratory endurance must be stressed and increased in order to be successful at the high elevations of Afghanistan. Even if your Soldiers are not going to be moving through the mountains, they must still be extremely strong as the weight of moving mortar rounds around the patrol bases will quickly break down their bodies. Our mortar ammunition resupplies would often consist of hundreds of mortar rounds that needed to be moved long distances in order to be stored securely.

### **Deployment**

Upon arrival to the company forward operating bases and platoon patrol bases, we immediately began conducting indirect fire missions. There was zero time on the ground to conduct a train up or rehearsals. Mortar platoons and sections must arrive in theater ready to immediately execute their duties as indirect fire infantrymen. There will be no time to conduct basic skills refresher as the operational tempo is too high to cease indirect fire coverage. While the rifle and mounted platoons are conducting their left and right seat rides, the mortar sections must be able to provide immediate, responsive indirect fires in support of engagements and operations. The enemy will absolutely exploit the lack of indirect fire coverage. Once the enemy determines the length of time it takes unprepared units to return fire, they will use such terms to their advantage.

We completely integrated our Soldiers and conducted a quick three-to-five day RIP operation. We received all pertinent information from the outgoing unit and shadowed them for approximately five days. All mortar sections in our battalion were emplaced into highly volatile locations that received direct and indirect fire every single day. After the RIP, we assumed control of the battlespace and continued to improve on the work that the outgoing unit started.

When arriving to a new location, the members of the mortar unit must immediately begin to learn the terrain around their patrol base. Basics such as cardinal directions,



target numbers, and prominent terrain features must be memorized. Along with knowing target numbers, Soldiers must memorize the range to all targets in sight of their mortar firing position. This will speed up the engagement of enemy forces during direct lay missions. All companies and mortar sections standardized the naming of prominent terrain features in their AO in order to speed up familiarization with the terrain. It is a great deal easier to remember a terrain feature name such as “Big Rock,” “One Tree Hill,” or “Javelin House” than it is to memorize a target number. Upon making contact, it is much easier to orient all Soldiers to the enemy location if the terrain feature is named. In the heat of battle, it is very easy to confuse target numbers. A technique to quickly memorize terrain

feature names and target numbers is to post large digital photographs of the terrain labeled with target numbers and nicknames in the fire direction center. The Soldiers can study the terrain diagram and photographs while on guard duty. Other units also put digital pictures along with range cards into their guard positions around the patrol base. It is an effective technique that will pay off when in contact.

### **Mortar Gunnery**

One of our biggest challenges during the first month of combat operations was our speed of mortar gunnery. I attribute this to the “range mentality” that we have ingrained into ourselves as mortarmen. I previously

served as live-fire observer/controller at the Joint Readiness Training Center at Fort Polk, La. I taught, coached, and mentored more than 25 mortar platoons during live-fire and force-on-force exercises. While conducting live fires, I never saw a mortar platoon use a referred deflection other than 2800 or 3200. It is just taken for granted that mortar sections set up their weapon systems and

*Soldiers with the 2nd Battalion (Airborne), 503rd Infantry Regiment launch 81mm mortar rounds during operations in Afghanistan in October 2007.*

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lay their aiming stakes in a generally front direction from the mortar tube. The mortar community needs to get out of this habit and start laying their aiming stakes in other directions.

My platoon used these same referred deflections when conducting our pre-deployment training. This is fine during training back at home station, but it will result in failure in combat. We quickly learned that our aiming stakes needed to be emplaced in the areas where we took the least amount of fire. As a result, our mortar gunners were constantly gunning backwards, sideways, and rarely to the front during conventional indirect fire missions. I cannot stress enough that units will fail if they only train using frontal-oriented referred deflections. When conducting training at home station, practice mortar gunnery using referred deflections that cause your gun squads to gun to the rear and to the side. Compute fire missions that cause intentional sight blockages. This will force your squad leaders to quickly transition to an alternate aiming pole. Mortar squads must be able to quickly transition between alternate and primary aiming poles in order to be successful in combat.

All mortar men in your unit must be proficient on all three mortar systems: 60mm, 81mm, and 120mm systems. We trained and certified all mortar men in our battalion to safely operate all three mortar systems. With each rifle and heavy weapons company in our battalion having a mix of all different mortar systems, we were able to seamlessly transition from one weapon system to the next. It also was a big benefit when we cross-loaded personnel to different patrol bases.

### **Mortar Positions**

Our fight in the mountains of Afghanistan was a 360-degree engagement area at all times. The enemy was often very well armed and would often engage from one location with the intent of focusing our mortars onto that position. Once the mortars were engaging the first position, the enemy would open up from their primary fighting positions often located in a complete opposite direction from the first attack. This strategy would attempt to diminish the effects of our mortar fire by delaying the responsiveness of the mortars onto the second and third enemy fighting positions. The enemy was very intelligent in trying to take advantage of the time it took our mortars crew to traverse from one direction to a complete opposite direction of fire. Through practice and crew drills, we were able to greatly diminish the effects of the enemy tactics.

The mortar positions were among the most targeted locations on the patrol bases. The enemy knew that if he took out our mortar systems, he would quickly be able to gain fire superiority and have the tactical advantage. In minutes, we would have multiple rounds impacting onto the enemy. Once all targets were engaged, the squad leader would conduct surveillance to locate the most concentrated enemy forces and then bring more mortar fire onto the enemy. He would continually direct his squad on what targets to engage and with what types of rounds. This technique aided in the destruction of numerous enemy forces.

We quickly learned that the enemy is a creature of habit. They will attempt to use the same fighting positions to engage our Soldiers. An example is during the summer of 2007 in northeast Afghanistan, where the enemy attempted to use the same positions three nights in a row. We quickly identified the enemy moving into position from our location and coordinated a time on target mission with our

mortar and TOW systems. We destroyed the enemy with accurate fires and prevented numerous attacks from taking place.

An easy method to accomplish quick indirect fires is to use direct lay fires and note the firing data for all of the targets that are in sight of your mortar position. Once the rounds were in the desired location or target position, we indexed a 3200 deflection and emplaced an aiming stake in the mortar firing position. We placed a small, wooden sign onto the aiming stake with the corresponding elevation and charge in order to hit the target. If we were unable to use an aiming stake, we would simply paint a black line down the side of the mortar firing position or Hesco. This quick fire method resulted in the destruction of numerous enemy fighters in hundreds of engagements throughout our battlespace. There were often times when we were under such heavy fire that we were unable to move the mortar sight to a 3200 deflection. In these cases, we would just line the mortar cannon up with the target stake or target line and fire the corresponding data. All corrections would be made using the traversing mechanism and range estimation. As a result, our mortar firing positions had numerous aiming stakes, signs, and black lines ringing the perimeter of the position.

When building our mortar firing positions, we learned that it is more advantageous to build your positions above ground than to dig down. With the amount of precipitation in the mountains, rocky terrain and unlevel ground, we would always build up instead of down. Our mortar sections used whatever means possible in order to build their positions. Some sections used rock walls to build large enough positions while others used gigantic, square processed logs to make positions. Units will need to improvise due to the remote locations where mortars will be emplaced. It is often not physically possible to move engineer assets to the side of a mountain.

An effective technique is to build a large square out of eight-foot Hesco baskets. We built numerous positions with Hesco baskets with two entrances and exits. We locally purchased gravel and lined the inside of our mortar firing positions. This helped to keep down the dust when firing and to also prevent flooding during the winter months. The inside of the mortar firing position measured about 15-feet across. This large position was needed in order to ensure that we could have proper mask clearance in all directions. When building your mortar position, you have to ensure that you can use as much of the mortar system's range as possible. In the mountains, you are going to lose a great deal of range due to firing at such high elevations and the need to clear major terrain features. We simply would use a pair of bolt cutters to lower specific areas of the Hesco in order to maximize our range.

It is imperative that you camouflage your mortar firing positions using any and all available materials. At our remote patrol bases, we would send patrols to all of the surrounding high ground in order to take photos of our patrol base from above. We would analyze these photos in order to see what the enemy could observe. We would then camouflage our positions accordingly with camouflage nets, vegetation, spray paint, or any other improvised materials.

We would also build fake mortar positions around the patrol base or emplace dummy mortar systems into old or alternate mortar firing positions. We would take a piece of lumber or pvc pipe and set it up with a covered poncho in order to confuse the enemy on our true mortar firing locations. After major engagements, we would often find numerous bullet holes and projectile fragments in these

fake positions. The enemy has extensive early warning and observation systems. Assume that you are always under observation. Any steps you can take to attempt to confuse or disorient him will give you a tactical advantage. Always emplace your fake mortar positions during hours of limited visibility. This will also prevent the local national workers on your patrol base from seeing your dummy position emplacement.

We did not have the luxury of being able to prepare alternate firing positions for every mortar system. The small size of our patrol bases, inhospitable terrain, and constant firing did not allow us to build multiple positions. We augmented this disadvantage by constantly improving our mortar firing positions with sandbags, additional Hesco baskets, camouflage, and fortifying the entry and exit routes with Hesco walls or sandbags. You should never allow a day to go by that you are not improving your firing positions. The weather, constant engagements, and normal wear and tear will quickly deteriorate your firing positions. Do

not wait for engineer assets to come to your location. If you have to fill Hescos by hand, you must do it. Complacency will get your Soldiers killed. Position improvement must be one of your daily priorities of work.

Units need to ensure that they have alternate entry and exit routes from their mortar positions. When engaged, we would often have to move between numerous mortar firing positions in order to suppress the enemy and gain fire superiority. In our area of operations, the mortar firing positions were the most dangerous places to be located. The enemy would attempt to fix our Soldiers in place and prevent the weapon systems from firing. We stocked extra machine gun and small arms ammunition in our positions. An effective technique was to store light antitank weapons (AT4s) and light antiarmor weapons (LAWs) in our firing positions in order to effectively engage enemy fighters. These weapon systems were absolutely critical in the defense of our positions. We also stocked our mortar firing positions with enough first aid materials to stabilize numerous casualties. Improvised

litters or skedcos were also kept in our ammunition supply points in order to quickly move wounded Soldiers. I recommend that units also keep at least two to three fire extinguishers in each mortar firing position. Unexpended propellant charges must be kept covered during firing. Be disciplined and put them into an empty ammunition box or round container during every fire mission. Do not allow your Soldiers to throw unexpended charges on the ground. Disciplined Soldiers understand the need for keeping your unexpended charges covered.

### **Ammunition**

Ammunition management will be one of the hardest tasks that you will encounter as a mortar platoon or section in a heavy mortar fight. We attempted to keep numerous types of all ammunition on hand at all times. Since all of the mortar units in our brigade were firing high numbers of ammunition, it was a challenge to keep all of our systems supplied at such high quantities.

Our ammunition resupply was conducted by our forward support company based at a forward operating base. Without their constant, outstanding support and ability to independently run resupply patrols to all of our mortar firing locations, we would have failed miserably. All of our ammunition requests were handled using ammunition expenditure reports given to our company fire support officers. At the end of each day, the FSO and company XO would have a maintenance meeting and then relay our expenditures and requests to higher headquarters. Based on our requested needs and our current round counts, the combat logistics patrol would know exactly how much ammunition we needed at each location.

Expect to fire every type of ammunition in the Army inventory. We fired rounds that were from the Vietnam era to the newest ammunition available. Tabular firing tables must be kept on hand for all ammunition. This is due to the fact that not all ammunition firing data is loaded into the M23 or M32 MBC. If your unit does not have all firing tables, they can e-mail [Jodie.Ables@us.army.mil](mailto:Jodie.Ables@us.army.mil). She is the firing table point of contact for mortars and was a great help in sending our unit as many new firing tables as we needed. If you have internet connectivity, you can also download all of the firing tables from AKO. We did not have



*A Soldier with the 2nd Battalion (Airborne), 503rd Infantry Regiment fires a mortar round toward an enemy position during operations in Afghanistan.*

connectivity at many of our patrol bases for the majority of the deployment so this was not feasible. Also, if the internet is slow, it can take hours to download some of the larger firing tables.

In the mountains of northeast Afghanistan, natural cover and huge rock formations offered excellent protection for enemy fighters. In order to effectively engage the enemy, we would fire a heavy mixture of white phosphorus and high explosive rounds. We would use the proximity fuze setting in order to maximize our effects on target.

In the mountain fight, we had great success using the 81mm M819 red phosphorus round. This excellent munition is well-suited for the mountain fight due to having the capability of changing the time setting of its detonation. This was very important when our crews were attempting to engage enemy that were located in deep ravines, draws, and in heavy rock formations. In conjunction with high explosive rounds, we had excellent suppression and neutralization of enemy targets. During the deployment, it was very difficult to procure this round in great numbers. We would save this round for our larger scale attacks in order to maximize its effects. Ensure that you properly store this round in a cool area where the temperatures will not become extremely hot.

In the beginning of our deployment, we were having difficulties engaging enemy on very steep terrain and inside deep ravines and draws. For these situations, a technique we used with great success was to increase the charge manually. By increasing the charge, we would increase the angle of fall for the mortar round. This technique allowed us to achieve greater effects on target and improve our overall accuracy.

Ensure that your unit properly stores all ammunition. In the first 10,000 rounds fired in support of combat operations, we had only two rounds that ballistically failed and did not land at the desired target. I believe this was due to improper storage of the round. White phosphorus rounds must be stored properly as the contents will easily settle on the side of the round and cause improper flight. Mortar rounds must be stored on a minimum of six inches of dunnage in order to prevent the rounds from getting wet or damaged. We would simply download pallets of bottled water and then use the pallets to store our cases of mortar ammunition.

On our gun line we would keep numerous rounds of all types. There are many techniques you can use to store your ready ammunition but a few are to use pallets with overhead cover, empty two-foot Hescos with sandbags on the bottom can hold up to fifteen 120mm rounds, or shelving built into the sides of your Hesco barriers. You will have to use the terrain to your advantage but ensure that your ready ammunition storage methods have overhead cover to prevent premature detonations from enemy fire.

Do not store all of your mortar ammunition in one location on your patrol base. The enemy is always performing surveillance. He will know where your ammunition storage areas are and will directly target them during engagements. Use multiple ammunition supply points in addition to your ready ammunition located on the gunline in order to mitigate any sustained damage by the enemy. You must use a minimum of three feet of overhead and side cover for all of your ammunition supply points.

At our patrol bases where direct lay was the primary method of engagement, we would have numerous rounds broken down to the minimum charge needed to hit our most likely enemy positions. This effective time-saving technique paid off when we were engaged by enemy forces. Keep these rounds in a separate ready location in

order for quick retrieval by your Soldiers.

Empty mortar ammunition cans soon overwhelm your patrol base if a plan does not exist to get rid of them. During the beginning of the deployment, we would fill all mortar cans with dirt and use them for force protection. When we did not need the cans anymore, we would give them to the Afghan National Army and they would use them for their force protection needs. Once no more cans were needed, we would simply call our FSC, and they would backhaul the empty cans to a main forward operating base for reuse or recycling.

Do not allow your personnel to burn unused charges or increments during the hours of limited visibility. We would only burn our excess charges in the morning. This would prevent the burn pit fire from burning all night and thus exposing our positions. Ensure that a competent person is put in charge of this task. Do not give charges away to the Soldiers on the FOB to burn human waste.

### **AEPS**

Due to high amount of firing on a daily basis, it would be practically impossible to record each round fired using the DA Form 2408-4 after each day's firing. As a result, we developed the following TTP. At the beginning of each month, each mortar squad and section would forward me their rounds fired for each mortar cannon by round type and charge for the previous month. I would then log onto AEPS and update the weapon card, print it off, and digitally send it to each section.

If you are unable to log onto AEPS or find your mortar cannon records, send an e-mail to Joe.Schmidt@us.army.mil. He is the point of contact for mortar cannons and firing records. His assistance and expertise greatly aided my platoon in the mortar fight as he was able to research numerous mortar cannons that we received to replace our worn systems. (Alternate e-mail POCs for mortar gun cards are brian.connelly1@us.army.mil, christopher.urban1@us.army.mil, and joseph.leigh@us.army.mil.)

### **Maintenance**

One of the biggest challenges in such a heavy mortar fight is ensuring your systems are fully mission capable at all times. During 15 months of heavy combat, our platoon had to replace several mortar cannons, mortar bipods, baseplates, and mortar sights. The constant daily firing took its toll on all of our equipment. After every fire mission we vigorously conducted mortar maintenance in order to ensure our cannons were ready at all times for all missions and enemy contacts. We had great success using rifle bore cleaner after every fire mission. Additionally, we would conduct maintenance on all systems at a minimum of twice daily. Units need to conduct daily preventive maintenance checks and services (PMCS) of all equipment to ensure that systems are operational and mission capable. If you follow the technical manual's detailed inspections, you will be able to forecast problems before they become a major issue.

We attempted to borescope and pullover all weapons systems at least once every two months or every 500 rounds. This was often very difficult due to the size of our battlespace, distance between patrol bases, and remote locations of patrol bases. Our armament technician from our forward support company was absolutely outstanding. He was given the support of his company to constantly travel throughout our area of operations with all repair parts, inspection equipment, and other needed supplies. His expertise



*Soldiers with the 2nd Battalion (Airborne), 503rd Infantry Regiment identify enemy fighters during operations in Afghanistan.*

was absolutely critical in the fixing of our mortar bipods, individual weapons, and other assigned equipment.

I recommend that units deploying to Afghanistan bring a minimum of two baseplates and two sights for each individual mortar system. This will prevent a system from becoming dead lined in case of damage to a sight or baseplate. The sheer distance between patrol bases and the location of your maintenance company may prevent the immediate replacement of a damaged item of equipment until a combat logistics patrol or air resupply is scheduled and executed.

Individual mortarmen must also know how to properly fix their equipment and troubleshoot problems. We fixed numerous bipods on our own by following the maintenance manuals. When the armament technician is inspecting your mortar cannons and bipods, have your Soldiers take notes and learn how to troubleshoot the problems on their own. My Soldiers quickly became experts at fixing their own bipods and other mortar essential equipment.

Our company purchased large tool kits for each of our mortar sections. These kits included everything that was needed in order to fix all weapons systems. The tool kits were absolutely critical in ensuring our mortar systems were fully operational at all times. I recommend that each unit deploying to Afghanistan issue each section or mortar squad a large tool kit that contains enough hand tools to fix all problems and last throughout the deployment. Additionally,

we purchased and issued jig saws, circular saws, drills, and extension cords. These tools were absolutely critical to building ammunition bunkers, increased force protection, and other various tasks.

#### **FDC Procedures**

All of the skills learned during previous training events, the Infantry Mortar Leader's Course, and unit live fires were validated throughout our 15 months of deployment to Afghanistan. While we did not use advanced missions to a great extent, the bases for all indirect fire missions were direct lay, immediate suppression, registration, coordinated illumination, adjust fire grid, shift, polar, and shift from a known point.

At our different firing locations, each fight was absolutely different. Some of the mortar sections primarily operated with a fire direction center while others operated predominately with direct lay fires. Some sections fired a heavy mix of both FDC operations and direct lay fires. This was due to the different terrain where each patrol base was located and the engagement distance by enemy forces. Many of the patrol bases had observation of all terrain in their area of operations. Regardless of the employment technique, every mortar section operated with outstanding skill and proficiency.

Direct lay was used at a majority of our firing locations to great effect. It was the quickest way to bring maximum rounds onto the enemy in the shortest amount of time possible. Using direct lay in conjunction with target reference stakes, we were able

to bring more than 20 rounds of mortar ammunition onto the enemy within the first minutes of direct and indirect fire engagements. Direct lay was primarily used at numerous locations due to our being engaged with enemy fire all the time in our mortar firing positions and patrol bases. We did not have time to process a call for fire, compute the data, and then send it to the gunline. At some locations, our mortar squad leader would lead his Soldiers to the mortar firing position, identify enemy targets, and give direct lay instructions to his squad. Often a squad would consist of the mortar squad leader, gunner, and an assistant gunner. The squad leader would spot the impact of the round and give corrections to the mortar gunner. If a forward observer called in a fire mission, we would simply compute it on the gunline and then give the commands to our gun team. Each squad leader whose primary missions were direct lay would have an MBITR radio or ASIP in order to communicate with the forward observers.

Soldiers had the ranges memorized to all terrain features and target numbers in their immediate vicinity. Upon reaching the mortar firing position, the Soldiers would quickly traverse the mortar onto the first visible enemy positions, fire the mortar system, and then quickly shift to all other known targets where enemy fighters were located. We learned the quickest way to suppress the enemy fighters was to engage as many targets as possible and then concentrate our fires onto the largest concentration of enemy fighters. The psychological impact of numerous mortar rounds impacting onto separate enemy fighting positions directly enabled our patrol base to gain fire superiority. Our Soldiers quickly became experts at direct lay fires and destroyed numerous enemy fighters.

We often used our mortars on continuous operations throughout our battlespace. We air assaulted, convoyed, and man-packed our 60mm and 81mm mortars on numerous operations into the mountains of northeast Afghanistan. We would attempt to go in as light as possible as the mountains quickly fatigue the body when carrying heavy loads. Due to having to support numerous missions throughout the area of operations, smaller crews were often the norm when conducting operations outside of our patrol bases. The FDC would consist of one computer while the other two personnel

conducted the manipulation of the mortar system. Since we were in radio contact with the mortar teams back at the patrol bases, they would hear the call for fire and conduct check computer duties. One aspect that the mortar team must plan for is ammunition resupply. We had great success by building pre-positioned speedballs of ammunition. This ammunition would be placed on the patrol base and could be quickly delivered to us by aviation or ground assets.

All of our Soldiers carried graphical firing scales also known as “whiz wheels” in the side pocket of their Improved Outer Tactical Vest or in their rack system. We carried them for every type of ammunition that we had on hand. Upon receiving enemy fire or positive identification of enemy personnel, the mortar gunner would conduct direct lay onto the enemy positions. The whiz wheels were absolutely a time saver in the processing and firing of thousands of fire missions. I recommend that the Army mandate that a graphical firing scale is included in every box of mortar ammunition. It was very difficult to find whiz wheels for infrared illumination for all mortar systems.

Every section in our platoon was able to receive meteorological (MET) data daily for all locations. By accessing the Interactive Grid Analysis and Display System (IGrADS) site, we received MET by inputting the latitude and longitude for each specific valley. During the first six months of the deployment, we received MET data every four hours by using a SIPR-connected computer with access to the IGrADS site. We had mixed results with MET data and eventually stopped using it. With the constant weather changes in our valleys, MET data was not giving us increased accuracy during fire missions. While MET data is extremely effective in other areas of operations, our mission accuracy was effective without it.

For conventional fire missions, we fired mostly adjust fire missions using the grid, shift, and polar methods. In order to process missions with speed, our fire direction centers already had the firing data worked up for most target numbers in our area of responsibility. We placed copies of all target lists in our mortar firing positions with the corresponding firing data. This sped up our processing of fire missions and for laying the weapons systems onto targets during operations and battle tracking. Our FDCs would often consist of two personnel who would receive the fire mission and send it to the gunline via radio. The gunline squad leader or senior man present would read back the firing data, check the mortar sight for correctness, and then prepare the ammunition for firing. Since many of our missions were danger close to friendly troops, we checked the initial azimuth of fire with an M2 compass. This was an additional safety measure that helped to mitigate any firing incidents. Since the mortar fight in our area of operations was a 360-degree engagement area, we ensured that we were always on the correct initial firing azimuth prior to firing the mortar.

When receiving a call for fire, you must receive the elevation of the target. We would not fire mortar missions unless given an altitude to the target or an up or down correction for a polar mission by the forward observer. This prevented short and long rounds from being fired. Vertical interval and altitude correction are critical computations that must always be taken into account. The majority of our patrol bases were located in the low ground due to our desire to be close to the population. As a result, the majority of our mortar fires were uphill. We learned that you must make bold corrections in order to adjust your mortar fires

onto steep terrain. When conducting direct lay fires, you must take into account the vertical interval and altitude corrections or else you will not be able to emplace accurate fires. We purchased Bushnell laser rangefinders, which were excellent because they computed the vertical interval into the final displayed computed range.

At many of our locations, the enemy would engage from multiple positions onto our friendly patrols and fire bases. We would often receive simultaneous missions from the forward observers. Units must practice simultaneous missions and develop standard operating procedures so there is no confusion on the radio or gunline. I recommend that units use separate firing nets for their artillery and mortar fires. This will prevent confusion when the observers begin to call corrections for fire missions. If you are unable to use separate controlling radio nets, ensure that the observer clearly states the target number that the subsequent corrections are for.

Our unit would find the enemy by using all available methods such as UAVs, optics, aviation assets, scout elements, and constant mounted and dismounted patrolling. Upon positive identification of the enemy, we would attempt to fix him in place with effective heavy weapon and mortar fires. Upon contact, our unit would immediately request artillery fires in order to fix and destroy the enemy. The mortar and artillery fire would fire on enemy positions, enemy exfiltration routes, and historic fighting positions. The enemy would often attempt to break contact using rat trails and natural lines of drift. We attempted to prevent him from breaking contact by firing on his exfiltration routes. We would fire onto these positions in order to fix the enemy in place. Simultaneously, our forward observers, platoon leaders, and company commanders would be requesting close combat attack (CCA) or close air support (CAS) assets to destroy the enemy. With the enemy fixed in place, we were able to destroy numerous enemy fighters with combined indirect fires, CAS, and CCA.

The key to our success in providing immediate, accurate indirect fires was that we had the complete confidence of all ground commanders. In our unit, company commanders had clearance of fires authority for all weapons systems up to 120mm mortars. Upon making contact, the section leader would call for clearance of numerous targets. Once given clearance of fires, the section leader was able to engage all targets without delay. If we had to clear our mortar fires at battalion level, we would lose our timeliness and effectiveness due to huge distances between firing elements and battalion headquarters. This effective technique was the key to our success in numerous engagements with enemy forces.

The purpose of this article was to discuss the tactics, techniques, and procedures used by the 2nd Battalion, 503rd IN (Airborne) mortar platoon and company mortar sections during its recent deployment to Afghanistan as part of OEF VIII. These valuable lessons learned directly led to success in combat for our battalion’s mortarmen.

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